

**Annex 4C. Wastewater Treatment and Discharge (IPCC 4D)**  
**to the Technical Support Document for the 2000-2012 California's Greenhouse Gas**  
**Emissions Inventory**

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**Variables Used in the Emissions Estimation Equations**

*Values last updated on Monday, March 24, 2014*

**IPCC category = 4D1 — Wastewater Treatment and Discharge - Domestic Wastewater Treatment and Discharge**

► Sector = Wastewater Treatment : Domestic Wastewater : Anaerobic Digesters >

**Activity = Biogas production**

- Variable Name -	- Year -	- Value and Units -	- Reference -
Biogas production	2000	7,935,375,067 cf	Calculation, see text
Biogas production	2001	7,967,556,653 cf	Calculation, see text
Biogas production	2002	7,983,767,478 cf	Calculation, see text
Biogas production	2003	8,009,962,546 cf	Calculation, see text
Biogas production	2004	8,009,738,597 cf	Calculation, see text
Biogas production	2005	8,059,537,458 cf	Calculation, see text
Biogas production	2006	8,045,468,186 cf	Calculation, see text
Biogas production	2007	8,041,845,915 cf	Calculation, see text
Biogas production	2008	8,037,194,775 cf	Calculation, see text
Biogas production	2009	8,020,110,527 cf	Calculation, see text
Biogas production	2010	8,008,966,913 cf	Calculation, see text
Biogas production	2011	8,011,284,545 cf	Calculation, see text
Biogas production	2012	8,011,351,574 cf	Calculation, see text
Digester gas production rate	2000	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2001	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2002	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2003	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2004	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2005	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2006	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2007	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2008	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2009	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2010	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2011	1 cf / person / day	USEPA, 2014e
Digester gas production rate	2012	1 cf / person / day	USEPA, 2014e
Methane destruction efficiency	2000	0.99	USEPA, 2014e
Methane destruction efficiency	2001	0.99	USEPA, 2014e
Methane destruction efficiency	2002	0.99	USEPA, 2014e
Methane destruction efficiency	2003	0.99	USEPA, 2014e
Methane destruction efficiency	2004	0.99	USEPA, 2014e
Methane destruction efficiency	2005	0.99	USEPA, 2014e
Methane destruction efficiency	2006	0.99	USEPA, 2014e
Methane destruction efficiency	2007	0.99	USEPA, 2014e
Methane destruction efficiency	2008	0.99	USEPA, 2014e
Methane destruction efficiency	2009	0.99	USEPA, 2014e
Methane destruction efficiency	2010	0.99	USEPA, 2014e
Methane destruction efficiency	2011	0.99	USEPA, 2014e
Methane destruction efficiency	2012	0.99	USEPA, 2014e
Per capita wastewater flow	2000	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2001	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2002	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2003	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2004	100 gal / person / day	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Per capita wastewater flow	2005	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2006	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2007	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2008	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2009	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2010	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2011	100 gal / person / day	USEPA, 2014e
Per capita wastewater flow	2012	100 gal / person / day	USEPA, 2014e
Proportion of CH4 in biogas	2000	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2001	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2002	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2003	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2004	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2005	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2006	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2007	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2008	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2009	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2010	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2011	0.65	USEPA, 2014e
Proportion of CH4 in biogas	2012	0.65	USEPA, 2014e
Wastewater flow to plants with anaerobic digesters	2000	2,172,631,900 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2001	2,181,442,919 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2002	2,185,881,292 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2003	2,193,053,258 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2004	2,192,991,943 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2005	2,206,626,408 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2006	2,202,774,372 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2007	2,201,782,628 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2008	2,200,509,189 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2009	2,195,831,681 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2010	2,192,780,663 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2011	2,193,415,209 gal / day	TSD Wastewater
Wastewater flow to plants with anaerobic digesters	2012	2,193,433,561 gal / day	TSD Wastewater

### ► Sector = Wastewater Treatment : Domestic Wastewater : Centralized Aerobic >

Activity = California population

- Variable Name -	- Year -	- Value and Units -	- Reference -
California population	2000	34,000,835 person	CDOF, 2013
California population	2001	34,512,742 person	CDOF, 2013
California population	2002	34,938,290 person	CDOF, 2013
California population	2003	35,388,928 person	CDOF, 2013
California population	2004	35,752,765 person	CDOF, 2013
California population	2005	35,985,582 person	CDOF, 2013
California population	2006	36,246,822 person	CDOF, 2013
California population	2007	36,552,529 person	CDOF, 2013
California population	2008	36,856,222 person	CDOF, 2013
California population	2009	37,077,204 person	CDOF, 2013
California population	2010	37,309,382 person	CDOF, 2013
California population	2011	37,570,307 person	CDOF, 2013
California population	2012	37,826,160 person	CDOF, 2013
Maximum methane production capacity	2000	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.6 g / g	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Maximum methane production capacity	2004	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.6 g / g	USEPA, 2014e
Methane correction for aerobic not well managed	2000	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2001	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2002	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2003	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2004	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2005	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2006	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2007	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2008	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2009	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2010	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2011	0.3	USEPA, 2014e
Methane correction for aerobic not well managed	2012	0.3	USEPA, 2014e
Per capita biological organic demand (BOD5)	2000	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2001	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2002	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2003	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2004	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2005	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2006	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2007	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2008	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2009	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2010	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2011	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2012	90 g / person / day	USEPA, 2014e
Proportion aerobic	2000	0.941	USEPA, various years
Proportion aerobic	2001	0.943	USEPA, various years
Proportion aerobic	2002	0.945	USEPA, various years
Proportion aerobic	2003	0.947	USEPA, various years
Proportion aerobic	2004	0.949	USEPA, various years
Proportion aerobic	2005	0.95	USEPA, various years
Proportion aerobic	2006	0.952	USEPA, various years
Proportion aerobic	2007	0.953	USEPA, various years
Proportion aerobic	2008	0.955	USEPA, various years
Proportion aerobic	2009	0.957	USEPA, various years
Proportion aerobic	2010	0.958	USEPA, various years
Proportion aerobic	2011	0.96	USEPA, various years
Proportion aerobic	2012	0.962	USEPA, various years
Proportion aerobic with primary treatment	2000	0.757	USEPA, various years
Proportion aerobic with primary treatment	2001	0.767	USEPA, various years
Proportion aerobic with primary treatment	2002	0.778	USEPA, various years
Proportion aerobic with primary treatment	2003	0.788	USEPA, various years
Proportion aerobic with primary treatment	2004	0.798	USEPA, various years
Proportion aerobic with primary treatment	2005	0.761	USEPA, various years
Proportion aerobic with primary treatment	2006	0.759	USEPA, various years

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Proportion aerobic with primary treatment	2007	0.757	USEPA, various years
Proportion aerobic with primary treatment	2008	0.755	USEPA, various years
Proportion aerobic with primary treatment	2009	0.752	USEPA, various years
Proportion aerobic with primary treatment	2010	0.75	USEPA, various years
Proportion aerobic with primary treatment	2011	0.748	USEPA, various years
Proportion aerobic with primary treatment	2012	0.746	USEPA, various years
Proportion aerobic without primary treatment	2000	0.243	USEPA, various years
Proportion aerobic without primary treatment	2001	0.233	USEPA, various years
Proportion aerobic without primary treatment	2002	0.223	USEPA, various years
Proportion aerobic without primary treatment	2003	0.212	USEPA, various years
Proportion aerobic without primary treatment	2004	0.202	USEPA, various years
Proportion aerobic without primary treatment	2005	0.236	USEPA, various years
Proportion aerobic without primary treatment	2006	0.237	USEPA, various years
Proportion aerobic without primary treatment	2007	0.238	USEPA, various years
Proportion aerobic without primary treatment	2008	0.239	USEPA, various years
Proportion aerobic without primary treatment	2009	0.241	USEPA, various years
Proportion aerobic without primary treatment	2010	0.242	USEPA, various years
Proportion aerobic without primary treatment	2011	0.243	USEPA, various years
Proportion aerobic without primary treatment	2012	0.245	USEPA, various years
Proportion centrally treated	2000	0.9	CWTRC, 2003
Proportion centrally treated	2001	0.9	CWTRC, 2003
Proportion centrally treated	2002	0.9	CWTRC, 2003
Proportion centrally treated	2003	0.9	CWTRC, 2003
Proportion centrally treated	2004	0.9	CWTRC, 2003
Proportion centrally treated	2005	0.9	CWTRC, 2003
Proportion centrally treated	2006	0.9	CWTRC, 2003
Proportion centrally treated	2007	0.9	CWTRC, 2003
Proportion centrally treated	2008	0.9	CWTRC, 2003
Proportion centrally treated	2009	0.9	CWTRC, 2003
Proportion centrally treated	2010	0.9	CWTRC, 2003
Proportion centrally treated	2011	0.9	CWTRC, 2003
Proportion centrally treated	2012	0.9	CWTRC, 2003
Proportion of BOD removed in primary treatment	2000	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2001	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2002	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2003	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2004	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2005	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2006	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2007	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2008	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2009	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2010	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2011	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2012	0.325	USEPA, 2014e
Proportion of operations not well managed	2000	0	USEPA, 2014e
Proportion of operations not well managed	2001	0	USEPA, 2014e
Proportion of operations not well managed	2002	0	USEPA, 2014e
Proportion of operations not well managed	2003	0	USEPA, 2014e
Proportion of operations not well managed	2004	0	USEPA, 2014e
Proportion of operations not well managed	2005	0	USEPA, 2014e
Proportion of operations not well managed	2006	0	USEPA, 2014e
Proportion of operations not well managed	2007	0	USEPA, 2014e
Proportion of operations not well managed	2008	0	USEPA, 2014e
Proportion of operations not well managed	2009	0	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Proportion of operations not well managed	2010	0	USEPA, 2014e
Proportion of operations not well managed	2011	0	USEPA, 2014e
Proportion of operations not well managed	2012	0	USEPA, 2014e

### ► Sector = Wastewater Treatment : Domestic Wastewater : Centralized Anaerobic >

#### Activity = California population

- Variable Name -	- Year -	- Value and Units -	- Reference -
California population	2000	34,000,835 person	CDOF, 2013
California population	2001	34,512,742 person	CDOF, 2013
California population	2002	34,938,290 person	CDOF, 2013
California population	2003	35,388,928 person	CDOF, 2013
California population	2004	35,752,765 person	CDOF, 2013
California population	2005	35,985,582 person	CDOF, 2013
California population	2006	36,246,822 person	CDOF, 2013
California population	2007	36,552,529 person	CDOF, 2013
California population	2008	36,856,222 person	CDOF, 2013
California population	2009	37,077,204 person	CDOF, 2013
California population	2010	37,309,382 person	CDOF, 2013
California population	2011	37,570,307 person	CDOF, 2013
California population	2012	37,826,160 person	CDOF, 2013
Maximum methane production capacity	2000	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.6 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.6 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Per capita biological organic demand (BOD5)	2000	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2001	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2002	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2003	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2004	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2005	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2006	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2007	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2008	90 g / person / day	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Per capita biological organic demand (BOD5)	2009	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2010	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2011	90 g / person / day	USEPA, 2014e
Per capita biological organic demand (BOD5)	2012	90 g / person / day	USEPA, 2014e
Proportion anaerobic	2000	0.059	USEPA, various years
Proportion anaerobic	2001	0.057	USEPA, various years
Proportion anaerobic	2002	0.055	USEPA, various years
Proportion anaerobic	2003	0.053	USEPA, various years
Proportion anaerobic	2004	0.051	USEPA, various years
Proportion anaerobic	2005	0.05	USEPA, various years
Proportion anaerobic	2006	0.048	USEPA, various years
Proportion anaerobic	2007	0.047	USEPA, various years
Proportion anaerobic	2008	0.045	USEPA, various years
Proportion anaerobic	2009	0.043	USEPA, various years
Proportion anaerobic	2010	0.042	USEPA, various years
Proportion anaerobic	2011	0.04	USEPA, various years
Proportion anaerobic	2012	0.038	USEPA, various years
Proportion anaerobic with primary treatment	2000	0.598	USEPA, various years
Proportion anaerobic with primary treatment	2001	0.61	USEPA, various years
Proportion anaerobic with primary treatment	2002	0.623	USEPA, various years
Proportion anaerobic with primary treatment	2003	0.635	USEPA, various years
Proportion anaerobic with primary treatment	2004	0.647	USEPA, various years
Proportion anaerobic with primary treatment	2005	0.626	USEPA, various years
Proportion anaerobic with primary treatment	2006	0.627	USEPA, various years
Proportion anaerobic with primary treatment	2007	0.627	USEPA, various years
Proportion anaerobic with primary treatment	2008	0.628	USEPA, various years
Proportion anaerobic with primary treatment	2009	0.628	USEPA, various years
Proportion anaerobic with primary treatment	2010	0.629	USEPA, various years
Proportion anaerobic with primary treatment	2011	0.629	USEPA, various years
Proportion anaerobic with primary treatment	2012	0.63	USEPA, various years
Proportion anaerobic without primary treatment	2000	0.402	USEPA, various years
Proportion anaerobic without primary treatment	2001	0.39	USEPA, various years
Proportion anaerobic without primary treatment	2002	0.378	USEPA, various years
Proportion anaerobic without primary treatment	2003	0.365	USEPA, various years
Proportion anaerobic without primary treatment	2004	0.353	USEPA, various years
Proportion anaerobic without primary treatment	2005	0.374	USEPA, various years
Proportion anaerobic without primary treatment	2006	0.373	USEPA, various years
Proportion anaerobic without primary treatment	2007	0.373	USEPA, various years
Proportion anaerobic without primary treatment	2008	0.372	USEPA, various years
Proportion anaerobic without primary treatment	2009	0.372	USEPA, various years
Proportion anaerobic without primary treatment	2010	0.371	USEPA, various years
Proportion anaerobic without primary treatment	2011	0.371	USEPA, various years
Proportion anaerobic without primary treatment	2012	0.37	USEPA, various years
Proportion centrally treated	2000	0.9	CWTRC, 2003
Proportion centrally treated	2001	0.9	CWTRC, 2003
Proportion centrally treated	2002	0.9	CWTRC, 2003
Proportion centrally treated	2003	0.9	CWTRC, 2003
Proportion centrally treated	2004	0.9	CWTRC, 2003
Proportion centrally treated	2005	0.9	CWTRC, 2003
Proportion centrally treated	2006	0.9	CWTRC, 2003
Proportion centrally treated	2007	0.9	CWTRC, 2003
Proportion centrally treated	2008	0.9	CWTRC, 2003
Proportion centrally treated	2009	0.9	CWTRC, 2003
Proportion centrally treated	2010	0.9	CWTRC, 2003
Proportion centrally treated	2011	0.9	CWTRC, 2003

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Proportion centrally treated	2012	0.9	CWTRC, 2003
Proportion of BOD removed in primary treatment	2000	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2001	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2002	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2003	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2004	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2005	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2006	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2007	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2008	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2009	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2010	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2011	0.325	USEPA, 2014e
Proportion of BOD removed in primary treatment	2012	0.325	USEPA, 2014e

### ► Sector = Wastewater Treatment : Domestic Wastewater : Effluent Emissions >

#### Activity = California population

- Variable Name -	- Year -	- Value and Units -	- Reference -
California population	2000	34,000,835 person	CDOF, 2013
California population	2001	34,512,742 person	CDOF, 2013
California population	2002	34,938,290 person	CDOF, 2013
California population	2003	35,388,928 person	CDOF, 2013
California population	2004	35,752,765 person	CDOF, 2013
California population	2005	35,985,582 person	CDOF, 2013
California population	2006	36,246,822 person	CDOF, 2013
California population	2007	36,552,529 person	CDOF, 2013
California population	2008	36,856,222 person	CDOF, 2013
California population	2009	37,077,204 person	CDOF, 2013
California population	2010	37,309,382 person	CDOF, 2013
California population	2011	37,570,307 person	CDOF, 2013
California population	2012	37,826,160 person	CDOF, 2013
CA population served by biological denitrification	2000	317,721 Person	TSD Wastewater
CA population served by biological denitrification	2001	312,884 Person	TSD Wastewater
CA population served by biological denitrification	2002	307,354 Person	TSD Wastewater
CA population served by biological denitrification	2003	302,163 Person	TSD Wastewater
CA population served by biological denitrification	2004	295,961 Person	TSD Wastewater
CA population served by biological denitrification	2005	288,676 Person	TSD Wastewater
CA population served by biological denitrification	2006	281,517 Person	TSD Wastewater
CA population served by biological denitrification	2007	274,748 Person	TSD Wastewater
CA population served by biological denitrification	2008	267,974 Person	TSD Wastewater
CA population served by biological denitrification	2009	260,797 Person	TSD Wastewater
CA population served by biological denitrification	2010	253,845 Person	TSD Wastewater
CA population served by biological denitrification	2011	247,349 Person	TSD Wastewater
CA population served by biological denitrification	2012	361,495 Person	TSD Wastewater
Effluent water emission factor	2000	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2001	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2002	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2003	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2004	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2005	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2006	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2007	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2008	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2009	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2010	5.000E-03 g / g	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Effluent water emission factor	2011	5.000E-03 g / g	USEPA, 2014e
Effluent water emission factor	2012	5.000E-03 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2000	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2001	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2002	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2003	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2004	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2005	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2006	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2007	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2008	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2009	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2010	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2011	0.16 g / g	USEPA, 2014e
Fraction of nitrogen in protein	2012	0.16 g / g	USEPA, 2014e
Industrial and commercial codischarge factor	2000	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2001	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2002	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2003	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2004	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2005	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2006	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2007	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2008	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2009	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2010	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2011	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2012	1.25	USEPA, 2014e
Non-consumption protein factor	2000	1.4	USEPA, 2014e
Non-consumption protein factor	2001	1.4	USEPA, 2014e
Non-consumption protein factor	2002	1.4	USEPA, 2014e
Non-consumption protein factor	2003	1.4	USEPA, 2014e
Non-consumption protein factor	2004	1.4	USEPA, 2014e
Non-consumption protein factor	2005	1.4	USEPA, 2014e
Non-consumption protein factor	2006	1.4	USEPA, 2014e
Non-consumption protein factor	2007	1.4	USEPA, 2014e
Non-consumption protein factor	2008	1.4	USEPA, 2014e
Non-consumption protein factor	2009	1.4	USEPA, 2014e
Non-consumption protein factor	2010	1.4	USEPA, 2014e
Non-consumption protein factor	2011	1.4	USEPA, 2014e
Non-consumption protein factor	2012	1.4	USEPA, 2014e
Protein consumption rate	2000	31,600 g / person / year	USEPA, 2014e
Protein consumption rate	2001	32,100 g / person / year	USEPA, 2014e
Protein consumption rate	2002	31,300 g / person / year	USEPA, 2014e
Protein consumption rate	2003	31,300 g / person / year	USEPA, 2014e
Protein consumption rate	2004	31,600 g / person / year	USEPA, 2014e
Protein consumption rate	2005	32,100 g / person / year	USEPA, 2014e
Protein consumption rate	2006	32,100 g / person / year	USEPA, 2014e
Protein consumption rate	2007	32,200 g / person / year	USEPA, 2014e
Protein consumption rate	2008	32,400 g / person / year	USEPA, 2014e
Protein consumption rate	2009	32,500 g / person / year	USEPA, 2014e
Protein consumption rate	2010	32,700 g / person / year	USEPA, 2014e
Protein consumption rate	2011	32,800 g / person / year	USEPA, 2014e
Protein consumption rate	2012	31,600 g / person / year	USEPA, 2014e
Sewage sludge N not entering aquatic environment	2000	29.82 Gg (thousand tonnes)	TSD Wastewater

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Sewage sludge N not entering aquatic environment	2001	30.17 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2002	30.46 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2003	30.79 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2004	31.02 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2005	31.69 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2006	31.96 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2007	32.26 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2008	32.56 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2009	32.81 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2010	33.08 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2011	33.4 Gg (thousand tonnes)	TSD Wastewater
Sewage sludge N not entering aquatic environment	2012	33.72 Gg (thousand tonnes)	TSD Wastewater

### ► Sector = Wastewater Treatment : Domestic Wastewater : Plant Emissions >

#### Activity = California population

- Variable Name -	- Year -	- Value and Units -	- Reference -
California population	2000	34,000,835 person	CDOF, 2013
California population	2001	34,512,742 person	CDOF, 2013
California population	2002	34,938,290 person	CDOF, 2013
California population	2003	35,388,928 person	CDOF, 2013
California population	2004	35,752,765 person	CDOF, 2013
California population	2005	35,985,582 person	CDOF, 2013
California population	2006	36,246,822 person	CDOF, 2013
California population	2007	36,552,529 person	CDOF, 2013
California population	2008	36,856,222 person	CDOF, 2013
California population	2009	37,077,204 person	CDOF, 2013
California population	2010	37,309,382 person	CDOF, 2013
California population	2011	37,570,307 person	CDOF, 2013
California population	2012	37,826,160 person	CDOF, 2013
CA population served by biological denitrification	2000	317,721 Person	TSD Wastewater
CA population served by biological denitrification	2001	312,884 Person	TSD Wastewater
CA population served by biological denitrification	2002	307,354 Person	TSD Wastewater
CA population served by biological denitrification	2003	302,163 Person	TSD Wastewater
CA population served by biological denitrification	2004	295,961 Person	TSD Wastewater
CA population served by biological denitrification	2005	288,676 Person	TSD Wastewater
CA population served by biological denitrification	2006	281,517 Person	TSD Wastewater
CA population served by biological denitrification	2007	274,748 Person	TSD Wastewater
CA population served by biological denitrification	2008	267,974 Person	TSD Wastewater
CA population served by biological denitrification	2009	260,797 Person	TSD Wastewater
CA population served by biological denitrification	2010	253,845 Person	TSD Wastewater
CA population served by biological denitrification	2011	247,349 Person	TSD Wastewater
CA population served by biological denitrification	2012	361,495 Person	TSD Wastewater
Emission factor w/o nitrification denitrification	2000	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2001	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2002	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2003	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2004	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2005	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2006	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2007	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2008	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2009	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2010	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2011	3.2 g / person	USEPA, 2014e
Emission factor w/o nitrification denitrification	2012	3.2 g / person	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Emission factor with nitrification denitrification	2000	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2001	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2002	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2003	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2004	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2005	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2006	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2007	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2008	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2009	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2010	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2011	7 g / person	USEPA, 2014e
Emission factor with nitrification denitrification	2012	7 g / person	USEPA, 2014e
Fraction using wastewater treatment plants	2000	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2001	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2002	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2003	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2004	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2005	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2006	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2007	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2008	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2009	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2010	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2011	0.9	CWTRC, 2003
Fraction using wastewater treatment plants	2012	0.9	CWTRC, 2003
Industrial and commercial codischarge factor	2000	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2001	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2002	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2003	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2004	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2005	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2006	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2007	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2008	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2009	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2010	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2011	1.25	USEPA, 2014e
Industrial and commercial codischarge factor	2012	1.25	USEPA, 2014e

### ► Sector = Wastewater Treatment : Domestic Wastewater : Septic Systems >

Activity = California population

- Variable Name -	- Year -	- Value and Units -	- Reference -
California population	2000	34,000,835 person	CDOF, 2013
California population	2001	34,512,742 person	CDOF, 2013
California population	2002	34,938,290 person	CDOF, 2013
California population	2003	35,388,928 person	CDOF, 2013
California population	2004	35,752,765 person	CDOF, 2013
California population	2005	35,985,582 person	CDOF, 2013
California population	2006	36,246,822 person	CDOF, 2013
California population	2007	36,552,529 person	CDOF, 2013
California population	2008	36,856,222 person	CDOF, 2013
California population	2009	37,077,204 person	CDOF, 2013
California population	2010	37,309,382 person	CDOF, 2013
California population	2011	37,570,307 person	CDOF, 2013

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

California population	2012	37,826,160 person	CDOF, 2013
Proportion in septic systems	2000	0.1	CWTRC, 2003
Proportion in septic systems	2001	0.1	CWTRC, 2003
Proportion in septic systems	2002	0.1	CWTRC, 2003
Proportion in septic systems	2003	0.1	CWTRC, 2003
Proportion in septic systems	2004	0.1	CWTRC, 2003
Proportion in septic systems	2005	0.1	CWTRC, 2003
Proportion in septic systems	2006	0.1	CWTRC, 2003
Proportion in septic systems	2007	0.1	CWTRC, 2003
Proportion in septic systems	2008	0.1	CWTRC, 2003
Proportion in septic systems	2009	0.1	CWTRC, 2003
Proportion in septic systems	2010	0.1	CWTRC, 2003
Proportion in septic systems	2011	0.1	CWTRC, 2003
Proportion in septic systems	2012	0.1	CWTRC, 2003
Septic Systems CH4 Emissions Factor	2000	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2001	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2002	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2003	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2004	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2005	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2006	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2007	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2008	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2009	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2010	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2011	10.7 g / person / day	USEPA, 2014e
Septic Systems CH4 Emissions Factor	2012	10.7 g / person / day	USEPA, 2014e

**IPCC category = 4D2 — Wastewater Treatment and Discharge - Industrial Wastewater Treatment and Discharge**

### ► Sector = Manufacturing : Wastewater Treatment : Fugitives >

#### Activity = Fugitive emissions

- Variable Name -	- Year -	- Value and Units -	- Reference -
Fugitive emissions	2000	Not used in estimates	None, see text
Fugitive emissions	2001	Not used in estimates	None, see text
Fugitive emissions	2002	Not used in estimates	None, see text
Fugitive emissions	2003	Not used in estimates	None, see text
Fugitive emissions	2004	Not used in estimates	None, see text
Fugitive emissions	2005	Not used in estimates	None, see text
Fugitive emissions	2006	Not used in estimates	None, see text
Fugitive emissions	2007	Not used in estimates	None, see text
Fugitive emissions	2008	Not used in estimates	None, see text
Fugitive emissions	2009	Not used in estimates	None, see text
Fugitive emissions	2010	Not used in estimates	None, see text
Fugitive emissions	2011	Not used in estimates	None, see text
Fugitive emissions	2012	Not used in estimates	None, see text

### ► Sector = Oil & Gas Extraction : Wastewater Treatment : Fugitives >

#### Activity = Fugitive emissions

- Variable Name -	- Year -	- Value and Units -	- Reference -
Fugitive emissions	2000	Not used in estimates	None, see text
Fugitive emissions	2001	Not used in estimates	None, see text
Fugitive emissions	2002	Not used in estimates	None, see text
Fugitive emissions	2003	Not used in estimates	None, see text
Fugitive emissions	2004	Not used in estimates	None, see text

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Fugitive emissions	2005	Not used in estimates	None, see text
Fugitive emissions	2006	Not used in estimates	None, see text
Fugitive emissions	2007	Not used in estimates	None, see text
Fugitive emissions	2008	Not used in estimates	None, see text
Fugitive emissions	2009	Not used in estimates	None, see text
Fugitive emissions	2010	Not used in estimates	None, see text
Fugitive emissions	2011	Not used in estimates	None, see text
Fugitive emissions	2012	Not used in estimates	None, see text

### ► Sector = Petroleum Marketing : Wastewater Treatment : Fugitives >

#### Activity = Fugitive emissions

- Variable Name -	- Year -	- Value and Units -	- Reference -
Fugitive emissions	2000	Not used in estimates	None, see text
Fugitive emissions	2001	Not used in estimates	None, see text
Fugitive emissions	2002	Not used in estimates	None, see text
Fugitive emissions	2003	Not used in estimates	None, see text
Fugitive emissions	2004	Not used in estimates	None, see text
Fugitive emissions	2005	Not used in estimates	None, see text
Fugitive emissions	2006	Not used in estimates	None, see text
Fugitive emissions	2007	Not used in estimates	None, see text
Fugitive emissions	2008	Not used in estimates	None, see text
Fugitive emissions	2009	Not used in estimates	None, see text
Fugitive emissions	2010	Not used in estimates	None, see text
Fugitive emissions	2011	Not used in estimates	None, see text
Fugitive emissions	2012	Not used in estimates	None, see text

### ► Sector = Wastewater Treatment : Industrial Wastewater >

#### Activity = Production processed - Apples

- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Apples	2000	258,548 tonne	USDA, 2013a
Production processed - Apples	2001	235,868 tonne	USDA, 2013a
Production processed - Apples	2002	213,188 tonne	USDA, 2013a
Production processed - Apples	2003	204,075 tonne	USDA, 2013a
Production processed - Apples	2004	160,993 tonne	USDA, 2013a
Production processed - Apples	2005	160,993 tonne	USDA, 2013a
Production processed - Apples	2006	160,993 tonne	USDA, 2013a
Production processed - Apples	2007	156,458 tonne	USDA, 2013a
Production processed - Apples	2008	163,260 tonne	USDA, 2013a
Production processed - Apples	2009	120,178 tonne	USDA, 2013a
Production processed - Apples	2010	126,980 tonne	USDA, 2013a
Production processed - Apples	2011	126,980 tonne	USDA, 2013a
Production processed - Apples	2012	136,050 tonne	USDA, 2013a
Chemical oxygen demand (COD)	2000	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2007	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	2.06 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	2.06 g / l	TSD Wastewater

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2004	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2009	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.05	USEPA, 2014e
Wastewater outflow rate	2000	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2001	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2005	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2010	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	3,660 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	3,660 l / tonne	USEPA, 2014e

### Activity = Production processed - Citrus fruit

- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Citrus fruit	2000	3,138,911 tonne	USDA, 2013a

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Production processed - Citrus fruit	2001	2,902,059 tonne	USDA, 2013a
Production processed - Citrus fruit	2002	2,639,374 tonne	USDA, 2013a
Production processed - Citrus fruit	2003	3,176,640 tonne	USDA, 2013a
Production processed - Citrus fruit	2004	2,569,095 tonne	USDA, 2013a
Production processed - Citrus fruit	2005	3,159,765 tonne	USDA, 2013a
Production processed - Citrus fruit	2006	3,113,550 tonne	USDA, 2013a
Production processed - Citrus fruit	2007	2,469,150 tonne	USDA, 2013a
Production processed - Citrus fruit	2008	2,981,565 tonne	USDA, 2013a
Production processed - Citrus fruit	2009	2,658,420 tonne	USDA, 2013a
Production processed - Citrus fruit	2010	3,128,625 tonne	USDA, 2013a
Production processed - Citrus fruit	2011	3,524,760 tonne	USDA, 2013a
Production processed - Citrus fruit	2012	3,358,800 tonne	USDA, 2013a
Chemical oxygen demand (COD)	2000	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2007	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	0.476 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	0.476 g / l	TSD Wastewater
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.05	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Proportion of COD treated anaerobically	2004	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2009	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.05	USEPA, 2014e
Wastewater outflow rate	2000	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2001	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2005	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2010	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	10,110 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	10,110 l / tonne	USEPA, 2014e

### Activity = Production processed - Non-citrus fruit

- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Non-citrus fruit	2000	10,246,237 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2001	8,942,780 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2002	9,469,909 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2003	8,755,580 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2004	8,388,827 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2005	9,520,938 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2006	8,356,631 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2007	9,007,531 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2008	9,369,379 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2009	9,248,397 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2010	9,904,404 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2011	9,486,047 tonne	USDA, 2013a
Production processed - Non-citrus fruit	2012	9,781,689 tonne	USDA, 2013a
Chemical oxygen demand (COD)	2000	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2007	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	1.81 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	1.81 g / l	TSD Wastewater
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2004	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2009	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.05	USEPA, 2014e
Wastewater outflow rate	2000	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2001	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2005	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2010	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	12,417 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	12,417 l / tonne	USEPA, 2014e

### Activity = Production processed - Other vegetables

- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Other vegetables	2000	22,320,409 tonne	USDA, 2013a
Production processed - Other vegetables	2001	20,593,470 tonne	USDA, 2013a
Production processed - Other vegetables	2002	25,125,178 tonne	USDA, 2013a
Production processed - Other vegetables	2003	21,127,653 tonne	USDA, 2013a
Production processed - Other vegetables	2004	23,974,238 tonne	USDA, 2013a
Production processed - Other vegetables	2005	21,945,880 tonne	USDA, 2013a

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Production processed - Other vegetables	2006	22,174,834 tonne	USDA, 2013a
Production processed - Other vegetables	2007	24,037,962 tonne	USDA, 2013a
Production processed - Other vegetables	2008	21,784,909 tonne	USDA, 2013a
Production processed - Other vegetables	2009	22,942,137 tonne	USDA, 2013a
Production processed - Other vegetables	2010	22,358,186 tonne	USDA, 2013a
Production processed - Other vegetables	2011	21,908,632 tonne	USDA, 2013a
Production processed - Other vegetables	2012	22,373,629 tonne	USDA, 2013a
Chemical oxygen demand (COD)	2000	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2007	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	1.22 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	1.22 g / l	TSD Wastewater
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2004	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.05	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Proportion of COD treated anaerobically	2009	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.05	USEPA, 2014e
Wastewater outflow rate	2000	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2001	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2005	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2010	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	8,857 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	8,857 l / tonne	USEPA, 2014e

### Activity = Production processed - Potatoes

- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Potatoes	2000	758,634 tonne	USDA, 2013a
Production processed - Potatoes	2001	598,735 tonne	USDA, 2013a
Production processed - Potatoes	2002	774,933 tonne	USDA, 2013a
Production processed - Potatoes	2003	778,275 tonne	USDA, 2013a
Production processed - Potatoes	2004	764,820 tonne	USDA, 2013a
Production processed - Potatoes	2005	637,425 tonne	USDA, 2013a
Production processed - Potatoes	2006	640,800 tonne	USDA, 2013a
Production processed - Potatoes	2007	617,445 tonne	USDA, 2013a
Production processed - Potatoes	2008	661,680 tonne	USDA, 2013a
Production processed - Potatoes	2009	658,980 tonne	USDA, 2013a
Production processed - Potatoes	2010	619,335 tonne	USDA, 2013a
Production processed - Potatoes	2011	685,440 tonne	USDA, 2013a
Production processed - Potatoes	2012	716,040 tonne	USDA, 2013a
Chemical oxygen demand (COD)	2000	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2007	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	2.65 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	2.65 g / l	TSD Wastewater
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2004	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2009	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.05	USEPA, 2014e
Wastewater outflow rate	2000	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2001	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2005	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2010	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	10,270 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	10,270 l / tonne	USEPA, 2014e

### Activity = Production processed - Poultry

- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Poultry	2000	627,344 tonne	USDA, 2013a
Production processed - Poultry	2001	637,929 tonne	USDA, 2013a
Production processed - Poultry	2002	652,040 tonne	USDA, 2013a
Production processed - Poultry	2003	653,353 tonne	USDA, 2013a
Production processed - Poultry	2004	666,571 tonne	USDA, 2013a
Production processed - Poultry	2005	683,466 tonne	USDA, 2013a
Production processed - Poultry	2006	682,479 tonne	USDA, 2013a
Production processed - Poultry	2007	691,454 tonne	USDA, 2013a
Production processed - Poultry	2008	709,637 tonne	USDA, 2013a
Production processed - Poultry	2009	675,477 tonne	USDA, 2013a
Production processed - Poultry	2010	682,841 tonne	USDA, 2013a

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Production processed - Poultry	2011	689,353 tonne	USDA, 2013a
Production processed - Poultry	2012	702,554 tonne	USDA, 2013a
Chemical oxygen demand (COD)	2000	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2007	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	4.52 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	4.52 g / l	TSD Wastewater
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2004	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2009	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.25	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.25	USEPA, 2014e
Wastewater outflow rate	2000	12,500 l / tonne	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Wastewater outflow rate	2001	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2005	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2010	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	12,500 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	12,500 l / tonne	USEPA, 2014e

### Activity = Production processed - Pulp and Paper

- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Pulp and Paper	2000	17,204,268 tonne	Calculation, see text
Production processed - Pulp and Paper	2001	16,262,268 tonne	Calculation, see text
Production processed - Pulp and Paper	2002	16,453,042 tonne	Calculation, see text
Production processed - Pulp and Paper	2003	16,334,926 tonne	Calculation, see text
Production processed - Pulp and Paper	2004	16,674,104 tonne	Calculation, see text
Production processed - Pulp and Paper	2005	16,867,421 tonne	Calculation, see text
Production processed - Pulp and Paper	2006	16,769,664 tonne	Calculation, see text
Production processed - Pulp and Paper	2007	16,933,717 tonne	Calculation, see text
Production processed - Pulp and Paper	2008	16,128,975 tonne	Calculation, see text
Production processed - Pulp and Paper	2009	14,552,029 tonne	Calculation, see text
Production processed - Pulp and Paper	2010	15,510,488 tonne	Calculation, see text
Production processed - Pulp and Paper	2011	15,465,999 tonne	Calculation, see text
Production processed - Pulp and Paper	2012	15,940,123 tonne	Calculation, see text
CA to US Population ratio	2000	0.121	CDOF and US Census
CA to US Population ratio	2001	0.121	CDOF and US Census
CA to US Population ratio	2002	0.121	CDOF and US Census
CA to US Population ratio	2003	0.122	CDOF and US Census
CA to US Population ratio	2004	0.122	CDOF and US Census
CA to US Population ratio	2005	0.122	CDOF and US Census
CA to US Population ratio	2006	0.121	CDOF and US Census
CA to US Population ratio	2007	0.121	CDOF and US Census
CA to US Population ratio	2008	0.121	CDOF and US Census
CA to US Population ratio	2009	0.121	CDOF and US Census
CA to US Population ratio	2010	0.121	CDOF and US Census
CA to US Population ratio	2011	0.121	CDOF and US Census
CA to US Population ratio	2012	0.12	CDOF and US Census
Chemical oxygen demand (COD)	2000	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2007	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	0.8 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	0.8 g / l	TSD Wastewater
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
National Production	2000	142,772,896 tonne	USEPA, 2014e
National Production	2001	134,276,248 tonne	USEPA, 2014e
National Production	2002	135,447,655 tonne	USEPA, 2014e
National Production	2003	133,908,880 tonne	USEPA, 2014e
National Production	2004	136,556,322 tonne	USEPA, 2014e
National Production	2005	138,516,671 tonne	USEPA, 2014e
National Production	2006	138,046,059 tonne	USEPA, 2014e
National Production	2007	139,551,602 tonne	USEPA, 2014e
National Production	2008	133,077,235 tonne	USEPA, 2014e
National Production	2009	120,401,427 tonne	USEPA, 2014e
National Production	2010	128,595,019 tonne	USEPA, 2014e
National Production	2011	128,266,634 tonne	USEPA, 2014e
National Production	2012	132,284,861 tonne	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2004	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2009	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.105	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.105	USEPA, 2014e
Wastewater outflow rate	2000	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2001	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	85,000 l / tonne	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Wastewater outflow rate	2005	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2010	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	85,000 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	85,000 l / tonne	USEPA, 2014e
<b>Activity = Production processed - Red meat</b>			
- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Red meat	2000	483,435 tonne	USDA, 2013a
Production processed - Red meat	2001	509,355 tonne	USDA, 2013a
Production processed - Red meat	2002	608,850 tonne	USDA, 2013a
Production processed - Red meat	2003	642,510 tonne	USDA, 2013a
Production processed - Red meat	2004	643,005 tonne	USDA, 2013a
Production processed - Red meat	2005	661,095 tonne	USDA, 2013a
Production processed - Red meat	2006	723,420 tonne	USDA, 2013a
Production processed - Red meat	2007	752,580 tonne	USDA, 2013a
Production processed - Red meat	2008	747,990 tonne	USDA, 2013a
Production processed - Red meat	2009	766,710 tonne	USDA, 2013a
Production processed - Red meat	2010	775,755 tonne	USDA, 2013a
Production processed - Red meat	2011	780,075 tonne	USDA, 2013a
Production processed - Red meat	2012	777,150 tonne	USDA, 2013a
Chemical oxygen demand (COD)	2000	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2007	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	8.47 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	8.47 g / l	TSD Wastewater
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2004	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2009	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.33	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.33	USEPA, 2014e
Wastewater outflow rate	2000	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2001	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2005	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2010	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	5,300 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	5,300 l / tonne	USEPA, 2014e

### Activity = Production processed - Wine grapes

- Variable Name -	- Year -	- Value and Units -	- Reference -
Production processed - Wine grapes	2000	3,051,769 tonne	USDA, 2013a
Production processed - Wine grapes	2001	2,767,821 tonne	USDA, 2013a
Production processed - Wine grapes	2002	2,856,725 tonne	USDA, 2013a
Production processed - Wine grapes	2003	2,638,463 tonne	USDA, 2013a
Production processed - Wine grapes	2004	2,553,205 tonne	USDA, 2013a
Production processed - Wine grapes	2005	3,452,042 tonne	USDA, 2013a
Production processed - Wine grapes	2006	2,880,632 tonne	USDA, 2013a
Production processed - Wine grapes	2007	2,982,216 tonne	USDA, 2013a
Production processed - Wine grapes	2008	2,770,885 tonne	USDA, 2013a
Production processed - Wine grapes	2009	3,394,901 tonne	USDA, 2013a
Production processed - Wine grapes	2010	3,291,503 tonne	USDA, 2013a
Production processed - Wine grapes	2011	3,072,009 tonne	USDA, 2013a
Production processed - Wine grapes	2012	3,680,606 tonne	USDA, 2013a
Chemical oxygen demand (COD)	2000	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2001	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2002	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2003	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2004	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2005	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2006	2.75 g / l	TSD Wastewater

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Chemical oxygen demand (COD)	2007	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2008	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2009	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2010	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2011	2.75 g / l	TSD Wastewater
Chemical oxygen demand (COD)	2012	2.75 g / l	TSD Wastewater
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2011	0.8	USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.8	USEPA, 2014e
Proportion of COD treated anaerobically	2000	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2001	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2002	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2003	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2004	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2005	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2006	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2007	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2008	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2009	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2010	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2011	0.05	USEPA, 2014e
Proportion of COD treated anaerobically	2012	0.05	USEPA, 2014e
Wastewater outflow rate	2000	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2001	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2002	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2003	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2004	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2005	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2006	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2007	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2008	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2009	2,783 l / tonne	USEPA, 2014e

## Variables Used in the Emissions Estimation Equations

Values last updated on Monday, March 24, 2014

Wastewater outflow rate	2010	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2011	2,783 l / tonne	USEPA, 2014e
Wastewater outflow rate	2012	2,783 l / tonne	USEPA, 2014e
<b>Activity = Wastewater flow - Petroleum Refining</b>			
- Variable Name -	- Year -	- Value and Units -	- Reference -
Wastewater flow - Petroleum Refining	2000	79,164,676 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2001	79,168,916 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2002	81,570,022 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2003	82,210,078 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2004	83,868,180 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2005	85,251,139 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2006	85,054,708 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2007	82,671,888 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2008	84,268,123 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2009	80,446,270 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2010	81,533,918 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2011	81,499,524 m3 / year	Compilation, see text
Wastewater flow - Petroleum Refining	2012	81,955,738 m3 / year	Compilation, see text
Chemical oxygen demand (COD)	2000	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2001	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2002	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2003	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2004	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2005	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2006	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2007	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2008	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2009	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2010	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2011	450 g / m3	USEPA, 2014e
Chemical oxygen demand (COD)	2012	450 g / m3	USEPA, 2014e
Maximum methane production capacity	2000	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2001	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2002	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2003	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2004	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2005	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2006	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2007	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2008	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2009	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2010	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2011	0.25 g / g	USEPA, 2014e
Maximum methane production capacity	2012	0.25 g / g	USEPA, 2014e
Methane correction factor for anaerobic systems	2000	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2001	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2002	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2003	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2004	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2005	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2006	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2007	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2008	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2009	0.3	USEPA, 2014e
Methane correction factor for anaerobic systems	2010	0.3	USEPA, 2014e

**Variables Used in the Emissions Estimation Equations***Values last updated on Monday, March 24, 2014*

Methane correction factor for anaerobic systems	2011	0.3 USEPA, 2014e
Methane correction factor for anaerobic systems	2012	0.3 USEPA, 2014e